

This listing of claims will replace all prior versions of claims in the application.

Claim 1. (previously presented) A method for forming a photoresist relief image on a substrate comprising:

(a) applying a coating layer of a chemically-amplified positive photoresist composition on a substrate, the photoresist composition comprising a resin and one or more photoacid generator compounds, wherein the one or more photoacid generator compound are present in a concentration of from 5.0 to 15.0 weight percent based on weight of total solids of the photoresist composition;

(b) exposing the photoresist coating layer to EUV radiation to form a photoresist relief image.

Claim 2. (previously presented) The method of claim 1 wherein the photoresist comprises a phenolic resin that comprises at least three distinct repeat units.

Claims 3-6. (cancelled)

Claim 7. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are present in a concentration of at least about 6 weight percent based on weight of total solids of the photoresist composition.

Claim 8. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are present in a concentration of from 5.0 to 12.0 weight percent based on weight of total solids of the photoresist composition.

Claim 9. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are present in a concentration of at least about 12 weight percent based on weight of total solids of the photoresist composition.

Claim 10. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are present in a concentration of from 11 to 15 weight percent based on weight of total solids of the photoresist composition.

Claim 11. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are ionic compounds.

Claim 12. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are non-ionic compounds.

Claim 13. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds are onium compounds, imidosulfonate compounds, N-sulfonyloxyimide compounds, sulfonate ester compounds, nitrobenzyl compounds, disulfone compounds, and/or halogenated non-ionic compounds, or mixtures thereof.

Claim 14. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds produce a halo-alkyl sulfonic acid upon exposure to activating radiation.

Claim 15. (previously presented) The method of claim 1 or 2 wherein the one or more photoacid generator compounds produce a per-fluoro sulfonic acid upon exposure to activating radiation.

Claim 16. (previously presented) The method of claim 1 or 2 wherein the resin comprises a polymer that contains phenolic units.

Claim 17. (previously presented) The method of claim 1 or 2 wherein the resin comprises a polymer that contains phenolic and photoacid-labile alkyl acrylate units.

Claim 18. (previously presented) The method of claim 1 or 2 wherein the resin comprises a polymer that contains 1) phenolic units, 2) phenyl units, and 3) photoacid-labile alkyl acrylate units.

Claim 19. (previously presented) The method of claim 1 or 2 wherein the resin comprises a polymer that contains acetal, ketal or ortho ester groups.

Claim 20. (currently amended) The method of claim 1 or 2 wherein the photoresist ~~does not contain a polymer that~~ resin component does not contain acetal, ketal or ortho ester groups.

Claim 21. (previously presented) The method of claim 1 or 2 wherein the photoresist does not contain a blend of resins of different compositions.